few; but still there are other sources from which grants may well be made to assist really promising students in attaining so desirable an end; and it is to be hoped that it may be regarded as a legitimate and not unfrequent outlet for public or private grants, to enable young men, who will ultimately engage in teaching, towards the attainment of experience which must always be of value to them in the exercise of their profession.

F. O. BOWER

NOTES

THE following is the list of Fellows elected into the Royal Society on Friday last, June 4:—Shelford Bidwell, M.A., William Colenso, F.L.S., Harold B. Dixon, F.C.S., Major-Gen. Edward Robert Festing, R.E., Andrew Russell Forsyth, M.A., Prof. A. H. Green, M.A., Prof. Victor Horsley, F.R.C.S., Raphael Meldola, F.R.A.S., Philip H. Pye-Smith, M.D., Henry Chamberlaine Russell, B.A., Adam Sedgwick, M.A., Prof. W. Cawthorne Unwin, B.Sc., Robert Warington, F.C.S., Capt. William James Lloyd Wharton, R.N., Henry Wilde.

ARRANGEMENTS are being made by the officers of several French Societies for holding an International Congress at Biarritz for discussing papers upon climatology, mineral and thermal springs, and allied subjects. A letter has been received from the Foreign Office transmitting copies of documents, and stating that the French Government is anxious that members of scientific Societies in this country should assist. The co-operation of the Royal Meteorological Society has also been specially asked by the President of the Congress, Dr. Durand Fardel. The sittings at Biarritz will occupy the first week in October, and be followed by a three weeks' tour to the principal watering-places of Southern France. Fellows of the Royal Meteorological Society will be allowed to travel over all French railways at half price. For further particulars apply to the Assistant Secretary of the Society.

THE Council of the Society of Arts have awarded the Society's silver medals to the following readers of papers during the Session, 1885-86:—To Prof. Francis Elgar, LL.D., for his paper on the load-lines of ships; to Henry Davey, for his paper on machinery in mines; to Prof. W. C. Unwin, for his paper on the employment of autographic records in testing materials; to C. V. Boys, for his paper on calculating machines; to Prof. Leonard Waldo, D.Sc., for his paper on watch-making by machinery; to John Mackenzie, for his paper on Bechuanaland and Austral Africa; to Edward Combes, C.M.G., for his paper on the industries and commerce of New South Wales; to G. Gordon Hake, for his paper on Cyprus since the British occupation; to Prof. W. N. Hartley, F.R.S., for his paper on photography and the spectroscope in their application to chemical analysis; to Prof. R. Meldola, for his paper on the scientific development of the coal-tar colour industry; to B. H. Baden Powell, C.I.E., for his paper on Indian manufactures from a practical point of view; to Capt. Richard Carnac Temple, for his paper on the every-day life of Indian women. Thanks were voted to the following members of the Council for the papers read by them:—To Capt. Douglas Galton, D.C.L., C.B., F.R.S., for his paper on results of experiments on mechanical motors for tramways made by the Commission at the Antwerp Exhibition; to W. H. Preece, F.R.S., for his paper on domestic electric lighting.

THE Society of Arts *conversazione* will be held, by permission of the Royal Commission, at the Colonial and Indian Exhibition, South Kensington, on Friday, July 16 next.

MR. TALFOURD ELY has resigned the Secretaryship of University College, London.

THE Russian Geographical Society has awarded this year its great gold medal to M. Yurgens for his remarkable work as chief of the Arctic Meteorological Station at the mouth of the Lena. The Medal of Count Lütke has been awarded to Col. Pyevtsoff for his most valuable account, full of new and interesting information, of his journey in N.W. Mongolia and Northern China, published, with a map, in the fifth volume of the West Siberian Branch of the Society. Great gold medals have been awarded to M. Dmitrevsky for his annotated translation of Otano Kitoro's work on Corea, and M. Tereshkevitch for his statistical description of the Government of Poltava. Small gold medals were awarded, to Prof. Lenz for his work in the capacity of President of the Physical Geography Section of the Society; to M. Fuss, for his calculations of the great levelling through Siberia; to the Director of the Tiflis Observatory, M. Milberg, for his magnetical observations carried on in connection with those of the Polar stations; and to M. Mainoff, for his work on the customary law of the Mordovians. Several silver medals were distributed to MM. Gedeonoff, Fedoroff, Krasnoff, and Ignatieff for astronomical, geological, and botanical works; to several persons who have sent observations on thunderstorms and rains, as also for various ethnographical and statistical researches.

THE Town Council of Banff, along with the Council of the Banffshire Field Club and Office-Bearers of the Banff Literary Society, have formed themselves into a General Committee (with power to add to their number) to promote the subscription of a fund for the erection of a memorial in Banff to the memory of the late Mr. Thomas Edward, A.L.S., "The Scottish Naturalist." The Committee feel sure it will be the desire of many throughout the whole nation to contribute to this fund, and to combine to make the memorial worthy of the universal admiration and respect entertained for Mr. Edward. In order to afford full opportunity for this, it is proposed to add to the Committee ladies and gentlemen throughout the various parts of the country who so appreciate Mr. Edward's life and work as to be willing to interest themselves in providing some substantial and suitable perpetuation of his memory. Communications should be addressed to the Interim Secretary, Mr. John Allan, Town Clerk of Banff.

THE Prince of Wales, considering that the rates of admission to the Colonial and Indian Exhibition at South Kensington should be brought within the means of all classes residing in the Metropolitan area, is making arrangements with the Railway Companies and other bodies in a position to co-operate in the organisation of a scheme whereby every working man, woman, and child will have an opportunity of visiting the Exhibition at greatly reduced prices on every week-day except Wednesday from the middle of August until the close of the Exhibition. Arrangements for enabling the working classes of the provinces to visit the Exhibition have been for some time in operation, under his Royal Highness's direction.

THE first of the conferences convened by the Geologists' Association on "The Mineral Resources of the Colonies and India," was held at the Colonial and Indian Exhibition on Saturday afternoon (June 5), when a lecture was delivered by Prof. V. Ball, F.R.S., on "The Mineral Resources of India and Burmah." The discussion brought out the urgent need for reform of the mining laws of India, and the following resolution, proposed by the chairman (Sir R. Temple), seconded by the Duke of Manchester, and supported by the lecturer and others, was unanimously adopted:—"This Conference having had under its review the mineral resources of India and the obstacles to development and exploitation of the same through the want of suitable or sufficient mining laws, respectfully urges upon the Secretary of State for India the desirability of regulating or revising the regulations for the working of mines in British India, including Burmah, and for the protection of mining interests therein, and also of negotiating arrangements to the same effect with the Native States." The next conference will be held on Saturday, June 19, when Prof. T. Rupert Jones, F.R.S., will lecture on "The Mineral Resources of South Africa." Sir Charles Mills will preside.

THE latest news from Catania reports that the eruption of Mount Etna has almost entirely ceased. The lava-streams, stopping within 300 metres of Nicolosi, have become hard enough to walk on, but repeated shocks of earthquake of considerable violence continue throughout the region. A huge gulf has yawned at Acireale, but no disasters are reported. A correspondent of the *Standard* writing from Catania on May 27 sends some valuable notes. "The stream of lava issuing from Monte Penitello (an eminence about 4980 feet high, and about 7 kilometres distant from Nicolosi) has travelled a longitudinal course of about 6 kilometres, and has formed four basins, the last of which is behind Monte Nccella. The width of the stream is about 2½ kilometres. The stream flows directly southward from the north-east. The western branch, which flows towards Dogola Arcino, has done but little damage, traversing in its course mostly gravelly soil. Prof. d'Amico, who is studying the phases of the eruption from the Observatory of Pennesi, in Acireale, has contributed to the archives of Catania a complete record of all the volcanic disturbances which he has noted up to date. The maximum number of 92 telluric convulsions was registered on the 19th inst. On the following day there were only 20, but subsequently the number rose from 25 to 30, 27, 35, and finally to 52, on Tuesday the 25th."

SEVERAL shocks of earthquake were felt at Smyrna, in the Island of Chios, and in the Erythrian Peninsula on the night of June 5.

PROF. MILNE recently made an attempt to sound the depth of the crater of Asamayama, the active volcano about seventy miles to the north-west of Tokio, and in the historic period one of the most destructive of all Japanese volcanoes. The attempt however failed owing to unfavourable weather. No details of the experiment or of the precise manner in which it was to be carried out have been received as yet.

WE have already referred to the threatened abolition, or alteration, of the Imperial College of Engineering in Tokio, in consequence of administrative changes which have resulted in the abolition of the Department of Public Works, under which the College was placed. As the names of several men well known in the English scientific world have been associated with this institution, we are glad to be able to say that the change has not been so great as was at first apprehended. Mr. Mori, the new Minister of Education, long the representative of Japan in this country, has established a new University, to which the Engineering College has become affiliated, as well as the former Medical College. Except in two important details, the organisation remains the same. The College now comes under the exclusive control of Japanese, in other words, the post of Principal, hitherto held by Dr. Divers and his predecessor, is no longer to be occupied by a foreigner, and the whole University is to be governed by its professors, and not by ordinary officials. The idea, says the *Japan Mail*, is "to emancipate learning and its professors from the too often ignorant and always hampering control of the ordinary official." Everything now is subject to the professorial body. Japan is not to lose the services of any of the foreign professors of the College. Dr. Divers continues as Professor of Chemistry, but in the Science instead of the Engineering College. Prof. Milne continues in the Chair of Mining Engineering, and there is a probability that he will also be invited to occupy a Chair of Seismology which it is proposed to found. It thus appears that the change is not one which interferes with the work of the College; if anything its status as an educational institution is increased, because it now forms an integral portion of the highest teaching establishment in the country. It is not clear from the account from which we quote whether the College will remain in the fine buildings which were specially erected for it, or whether it will be removed to the University, which is some distance away.

IN connection with this change, the professors and students of the College, meeting for the last time as members of the Engineering College, presented the Principal, Dr. Divers, with a handsome bronze vase, inlaid with gold. Prof. Milne, as the senior, in handing the present to Dr. Divers on behalf of the subscribers, made a short speech referring to the services of the Principal to Japan, his pupils, and colleagues; and with this ceremony an institution in which English science has, or should have, a peculiar interest, came to an end, but only to rise again in another shape, let us hope for increased usefulness to Japan.

THE Chair of Seismology which has been founded in the Science College of the new University of Japan has been filled by the appointment of Mr. K. Sekiya as professor.

AT Cambridge to-day (Thursday) a vote of the Senate is to be taken in favour of appointing a syndicate to obtain plans and estimates for the erection of a Geological Museum, to confer with the Sedgwick Memorial Committee, and to report before the middle of the Michaelmas term. Thus it appears likely that at last the Sedgwick Museum will become an actual fact, after twelve years of incubation.

THE current number of the *Proceedings* of the Bath Natural History and Antiquarian Field Club contains several papers of scientific interest. Mr. Broome continues his list of fungi found in the neighbourhood of Bath. Mr. Blomefield, writing on the firs of Bournemouth, argues that these trees are true natives of that part of the country, in opposition to the theory that the Scotch fir, though indigenous in Scotland, is not indigenous in England. Dr. Norman describes the fresh-water algæ of the Bath thermal waters; and Mr. McMurtrie the salt-springs found at great depths in the Coal-measures at Radstock.

FUNGI also occupy a considerable space in the *Proceedings* of the Belfast Naturalists' Field Club, as in those of the Bath Society, for Mr. Lett gives a list of the fungi of the North of Ireland which fills more than 50 pages. Dr. Malcolmson describes some recent *Ostracoda* of Belfast Lough, and appends an elaborate table of their distribution. Mr. Joseph Wright adds two lists—one of the Foraminifera of Down and Antrim, the other of the Cretaceous Foraminifera of Keady Hill in the county of Derry. The record of the meetings is very full, and contains much information on various scientific subjects connected with the North of Ireland.

ARRANGEMENTS have been made by the Colonial and Indian Aquarium authorities to bring over a consignment of some of the principal species of fish in the waters of Java for purposes of exhibition. The British India Steamship Company have undertaken to transmit them in specially made glass carriers, which have been forwarded to Java for that purpose. Fourteen specimens of the *Chelone midas*, or green turtle, have lately arrived at the Aquarium from West India; also a collection of land crabs from the same quarter.

THROUGH the instrumentality of the National Fish-Culture Association the River Lea was last week enriched with a quantity of salmon fry, which were turned into those *locales* most suitable to their requirements. Although the Lea is in a very polluted condition, there are portions free from contamination where fish thrive well. The Severn Fishery Board have turned into their river a large number of salmon fry. The ova from which they were hatched out were collected in the first instance by the Board and forwarded to the National Fish-Culture Association to incubate, which was done most successfully. The Severn Fishery Board are to be commended upon the action they have taken to replenish their river with fish, as they set an example to other bodies having the interests of their waters at heart. The hatchery at South Kensington and Delaford belonging to the Association might become an extensive medium in carrying such an object into effect at a minimum cost.

THE additions to the Zoological Society's Gardens during the past week include a Nisnas Monkey (*Cercopithecus pyrrhonotus*) from Nubia, presented by the Rev. W. MacGregor; a Macaque Monkey (*Macacus cynomolgus*) from India, presented by Mr. J. Coston; a Common Badger (*Meles taxus*), British, presented by Mr. C. A. Ross; six Black-footed Penguins (*Spheniscus demersus*) from South Africa, presented by Capt. John Hewat; four Siamese Blue Pies (*Urocissa magnirostris*) from Siam, two Small Hill-Mynahs (*Gracula religiosa*) from Southern India, a Rufous necked Weaver Bird (*Hyphantornis textor*) from South Africa, presented by Mr. J. M. Cook, F.Z.S.; a Golden Eagle (*Aquila chrysaetos*) from Russia, presented by Mr. Walter Holdsworth; six Long-eared Owls (*Asio otus*), British, presented by Mr. G. B. Burnand; a Malbrouck Monkey (*Cercopithecus cynosurus*) from West Africa, three Ruffs (*Machetes pugnax*), British, deposited; a Glaucous Macaw (*Ara glauca*) from Paraguay, four Crested Pigeons (*Ocyphaps lophotes*) from Australia, four Amherst's Pheasants (*Thaumalea amherstiæ*) from China, two Great American Egrets (*Ardea egretta*) from South America, two Lapwings (*Vanellus vulgaris*), British, four Indian Tree Ducks (*Dendrocygna arcuata*) from India, purchased; a Japanese Deer (*Cervus sika*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

COMET BROOKS II.—The following ephemeris for this comet is by Prof. C. Frisby (Science Observer Special Circular, No. 67):—

For Greenwich Midnight

1886	R.A. h. m. s.	Decl. ° ′	Log *r*	Log Δ	Brightness
June 11	6 23 20	69 15·0 N.	0·0380	0·1783	0·26
15	6 58 55	66 54·1	0·0557	0·2015	0·21
19	7 27 41	64 28·3	0·0734	0·2275	0·17
23	7 39 51	62 58·9	0·0909	0·2486	0·14
27	7 59 57	60 49·5 N.	0·1081	0·2704	0·12

The brightness on May 2 is taken as unity.

COMET BROOKS III.—Dr. S. Oppenheim has calculated the following elements and ephemeris for this comet from observations made on May 25, 28, and 30, at Arcetri, Rome, and Vienna:—

$$T = 1886 \text{ June } 2\cdot90285 \text{ Berlin M.T.}$$

$$\left.\begin{array}{rrrr} \omega = & 173^\circ & 57' & 49''\cdot6 \\ \Omega = & 47 & 14 & 43\cdot5 \\ i = & 16 & 8 & 52\cdot3 \end{array}\right\} \text{Mean Eq. } 1886\cdot0.$$

$$\log q = 0\cdot170230$$

Ephemeris for Berlin Midnight

1885	R.A. h. m. s.	Decl. ° ′	Log *r*	Log Δ	Brightness
June 8	12 18 3	1 1·8 S.	0·1709	9·9183	0·87
12	12 26 1	3 32·8	0·1721	9·9274	0·83
16	12 34 25	6 1·6	0·1739	9·9375	0·79
20	12 43 15	8 27·4	0·1763	9·9486	0·75
24	12 52 27	10 49·2	0·1793	9·9605	0·70
28	13 1 59	13 6·1 S.	0·1828	9·9732	0·65

The brightness on May 25 is taken as unity.

The comet is faint, and not bright as stated in the telegram announcing the discovery.

SPECTROSCOPIC DETERMINATION OF THE MOTION OF THE SOLAR SYSTEM IN SPACE.—Dr. R. von Kövesligethy mentions (*Astronomische Nachrichten*, No. 2731) that some three years ago he tried to deduce the speed with which the sun is travelling in space and the point to which its progress is directed, from the observations of the displacements of lines in stellar spectra published in the *Monthly Notices*. The latter inquiry he gave up, as the data supplied did not seem sufficiently trustworthy for a satisfactory result to be obtained from them. He therefore assumed the apex as found from the discussion of the proper motions of stars, viz. R.A. = 216°·0, Decl. = 35°·1 N. Taking the simple arithmetical mean of the observations of the individual stars observed—about 70 in number—he found the speed of translation of the solar system to be about 8·6 geographical miles per second. This rate of motion would agree far better with Struve's value, derived from the consideration of the proper motions of stars, than Herr Homann's (NATURE, vol. xxxiii. p. 450) result does. Dr. Kövesligethy does not, however, place much reliance on the result he has thus obtained.

PUBLICATION OF THE ZONE-OBSERVATIONS OF THE "ASTRONOMISCHE GESELLSCHAFT."—M. Doubiago, who has succeeded the late Marian Kowalski as Director of the Kasan Observatory, has recently issued a volume containing the observations made at Kasan during the years 1869-77, of the stars situated in the zone between 75° and 80° of north declination. The principal object of this work, undertaken by M. Kowalski by arrangement with the *Astronomische Gesellschaft*, was the determination of the positions of the stars contained in this zone down to the ninth magnitude. M. Kowalski, however, determined to include in his work all the stars of the *Bonner Durchmusterung* situated in the above-mentioned zone, about 5000 in number, as well as a considerable number of fainter stars. The observations, commenced in 1869, were finished in 1879, and the present volume contains 14,329 observations, that is, about half the total number necessary to complete the projected scheme of having four observations of each star. The results are given in the usual form in which zone-observations are published, viz. the apparent positions for each day of observation are given, together with the reduction to the mean place for the beginning of the year. As far as we remember, Kasan has the honour of being the second of the observatories engaged on the zone work of the *Astronomische Gesellschaft* which has published their observations, Prof. Krüger having already published his Helsingfors zones (55° to 65° of north declination) in two volumes, the first volume having appeared in 1883, and the second in 1885.

THE MADRAS OBSERVATORY.—Mr. Pogson's report for the year 1884 has recently been issued. He points out that during the year a work on "Telegraphic Longitude Determinations in India" was printed and published. The number of observations made with the meridian circle during the year was 844, which brings up the total number of observations made with this instrument since 1862, now awaiting publication, to 51,722. The separate results and annual catalogues will fill eight volumes, to be followed by a final catalogue of about 5000 stars, reduced to the epoch 1875. All the reductions are completed up to date, and Mr. Pogson hopes that these volumes will appear in fairly rapid succession. We hope so too. The speedy publication of a catalogue of 5000 stars would do much towards restoring the Madras Observatory to the position, as a scientific institution, which it formerly held.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1886 *JUNE* 13-19

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on June 13

Sun rises, 3h. 45m.; souths, 11h. 59m. 45·2s.; sets, 20h. 15m.; decl. on meridian, 23° 14′ N.: Sidereal Time at Sunset, 13h. 43m.

Moon (Full on June 16) rises, 16h. 50m.; souths, 21h. 51m.; sets, 2h. 44m.*; decl. on meridian, 13° 26′ S.

Planet	Rises h. m.	Souths h. m.	Sets h. m.	Decl. on meridian ° ′
Mercury ...	... 3 43 ...	12 7 ...	20 31 ...	24 26 N.
Venus ...	... 2 0 ...	9 10 ...	16 20 ...	12 52 N.
Mars ...	... 11 36 ...	18 1 ...	0 26* ...	4 7 N.
Jupiter...	... 12 5 ...	18 22 ...	0 39* ...	2 32 N.
Saturn...	... 5 2 ...	13 13 ...	21 24 ...	22 41 N.

* Indicates that the setting is that of the following morning.